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Automated Data Processing - Part IV - EDP

Patricia L. Duckworth

AUTOMATED DATA PROCESSING— PART IV—EDP

This last in a series of four articles which have been printed in 1970 describes a simple accounts receivable application on a computer. The author weighs the advantages and disadvantages of various data processing systems.

Dr. Patricia L. Duckworth, CPA
Denver, Colorado

In the March 1970 issue, an accounts receivable application for a punched card installation was illustrated. In this last installment, the same accounts receivable application will be discussed with a computer as the equipment involved.

If a computer is being used, the first steps in the design of the system remain unchanged. The card must be carefully arranged with the same attention given to fields that was needed for the punched card installation. It is still necessary to determine what information is to be recorded on the card and where this information should be placed. In addition to designing the card, the following procedures could be used.

1. A master file of accounts receivable must be created on some kind of external storage. Because all accounts are not updated daily, magnetic disk is usually preferable to magnetic tape. This is because disk has random access and tape has sequential access. The magnetic disk will be loaded to contain the customer number, name, address, and the present balance of the customer.

2. The detail cards are punched on the key punch from the information on the shipping order. If it is so programmed, the computer can multiply quantity by price, calculate discounts for selected classes of customers, and determine appropriate city or state sales tax.

3. Detail cards are also punched for each cash receipt ticket. These cards must contain the customer account number and some code indicating a cash receipt.

4. At this point the procedure differs considerably from a punched card installation. The program deck for updating the accounts receivable disk is placed in the hopper of the card reader with the data deck following it. The master disk containing the accounts receivable data is placed on the disk drive. The computer is started by the operator and, without further assistance by the operator, will execute the program to update the accounts receivable.

The first step of programming is flow charting. (See Part III, page 10, of the May 1970 issue.) Flow charting requires a complete understanding of the system, for each step—regardless of how small—must be documented. The example on the next page shows a simple flow chart which might be used in this type of application.

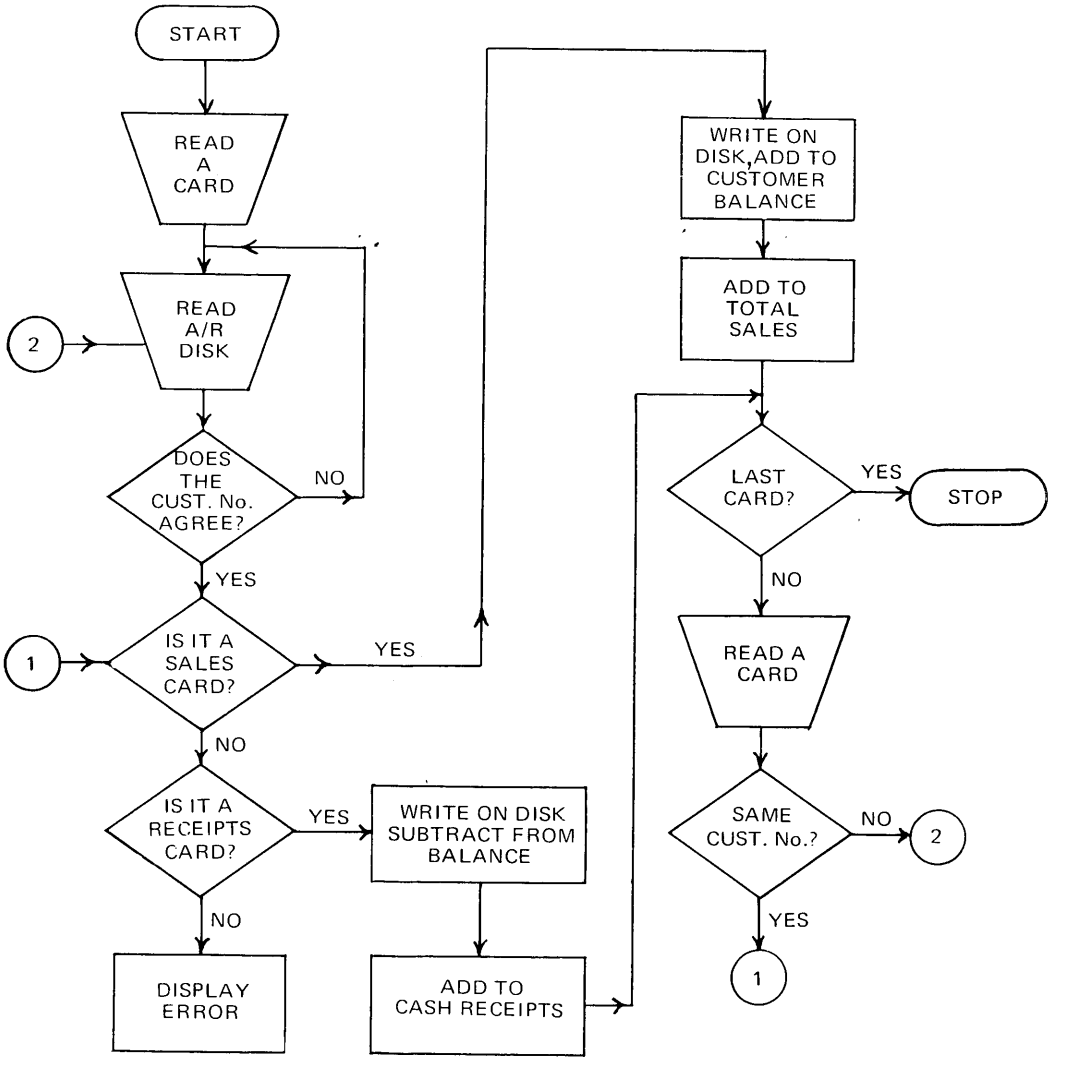
In its simplest form, the program could instruct the computer to read a card, find the proper customer's account on the disk, add the sales or subtract the receipts from the customer's balance, calculate a new balance, and add the sales or receipts to the proper general ledger balances. After all cards are processed it stops. The computer could easily be programmed to print sales invoices or to write out the accounts receivable ledger (the contents of the disk). At the end of the month it could rearrange the data and print out customers' statements. Meanwhile, it could have been instructed to retain information needed for general ledger updating and it will retrieve this information on demand.

In an integrated system, the computer will be instructed by the program to do much more than update the accounts receivable ledger and the general ledger. It could be programmed to perform the following additional procedures:

1. Check the customer's account to see if the customer has reached the maximum credit to be allowed him and, if he has, reject the order.

2. If the customer's credit is acceptable, the computer can then check the inventory disk for the first item the customer ordered to be sure the inventory level is sufficient to fill the order. If it is not, it will backorder the product which is out of stock and check the next item.

3. If the computer finds that sufficient inventory is available to fill the order, it could not only add the selling price of the product to the customer's account balance and to the sales account, but also print a line on the sales invoice, delete the quantity of the product from the inventory file, and add the cost of



the product to the cost of sales in the general ledger. It could further be instructed to check the new inventory level and, if it is below a certain predetermined level, print a purchase order for additional stock.

4. It could print sales invoices daily, customer's statements periodically, or an accounts receivable ledger and a detailed inventory report on demand.

5. It could age accounts receivable.

Evaluation of Data Processing Systems

Alternative systems must be evaluated to determine which system provides the most effective means of meeting the requirements and objectives of a business. The evaluation will be based on speed, accuracy, and cost. At what speed can the various operations be accomplished? How accurate is the operation? What type of manpower is required and how much does it cost? What type of equipment is required and how much does it cost?

If the number of records are small and the processing of data simple enough, a manual system can produce data more economically and even faster than a system requiring the use of expensive equipment.

If the number of records are high or processing operations are complex, a punched card system is rated second to the computer in speed and accuracy. Fewer people are required to operate the system than a manual system, but the equipment is more expensive. "In general, a punched-card system is used when the file maintenance and output requirements of a system are neither large enough

nor complex enough to justify a costly computer operation, but are nevertheless such that they demand faster and more accurate performance than can be done by manual techniques."[13]

If the volume of records is large or the processing complex, a computer can perform operations at far faster speeds and with much greater accuracy than can any other system. Although a computer requires less manpower, the manpower required to support the computer operation is normally in higher salary brackets. Equipment cost is much higher. The computer system is economically feasible if large volumes of records exist and/or if there is a complex processing operation.

In addition to the record keeping applications (payroll, billing, and other accounting applications), the computer can help management make decisions about current and future problems. Decisions on how much to buy, how much to make, and where to ship can be solved by the computer using mathematical models.

Summary

Every operation that can be done manually can be done faster with punched card equipment and faster yet with electronic equipment. Electronic equipment is more accurate than either a manual system or a punched card system. Less manpower is required for a punched card system than a manual system, and less manpower yet for a computer system. However, the manpower for a computer system is usually in higher salary brackets. Equipment is more expensive for punched card systems than manual and is much more costly for an electronic system than either of the other systems. Whether a manual, mechanical, or electronic system is best for a particular business depends on which system is the most effective in meeting the requirements of the specific business.

[13]Beryl Robichaud, *Understanding Modern Business Data Processing* (New York, New York: McGraw-Hill Book Company, 1966), p. 179.

ANNUAL MEETING
AMERICAN WOMAN'S SOCIETY OF CERTIFIED PUBLIC ACCOUNTANTS

In accordance with Article V, Sections 1 through 4, of the Bylaws of the American Woman's Society of Certified Public Accountants, notice is given that the Annual Meeting of the Society will be held at 1:45 PM on Saturday, September 19, 1970, in the New York Hilton Hotel, New York, New York.

Doris A. Welch, CPA
Secretary, 1969-1970

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